PROJECT REPORT

ToyCraft Tales: Tableau's Vision into Toy Manufacturer Data

1.INTRODUCTION

1.1 Project Overview

"ToyCraft Tales" is a data visualization project developed using Tableau to explore the toy manufacturing industry. It aims to uncover insights into market trends, consumer preferences, and regional demand using interactive dashboards based on historical and survey data.

1.2 Purpose

The purpose of this project is to provide toy manufacturers, educators, and retail decision-makers with an intuitive platform that helps them understand toy sales behaviour over time and geography. The dashboard supports data-driven planning, inventory control, and customer satisfaction.

2. IDEATION PHASE

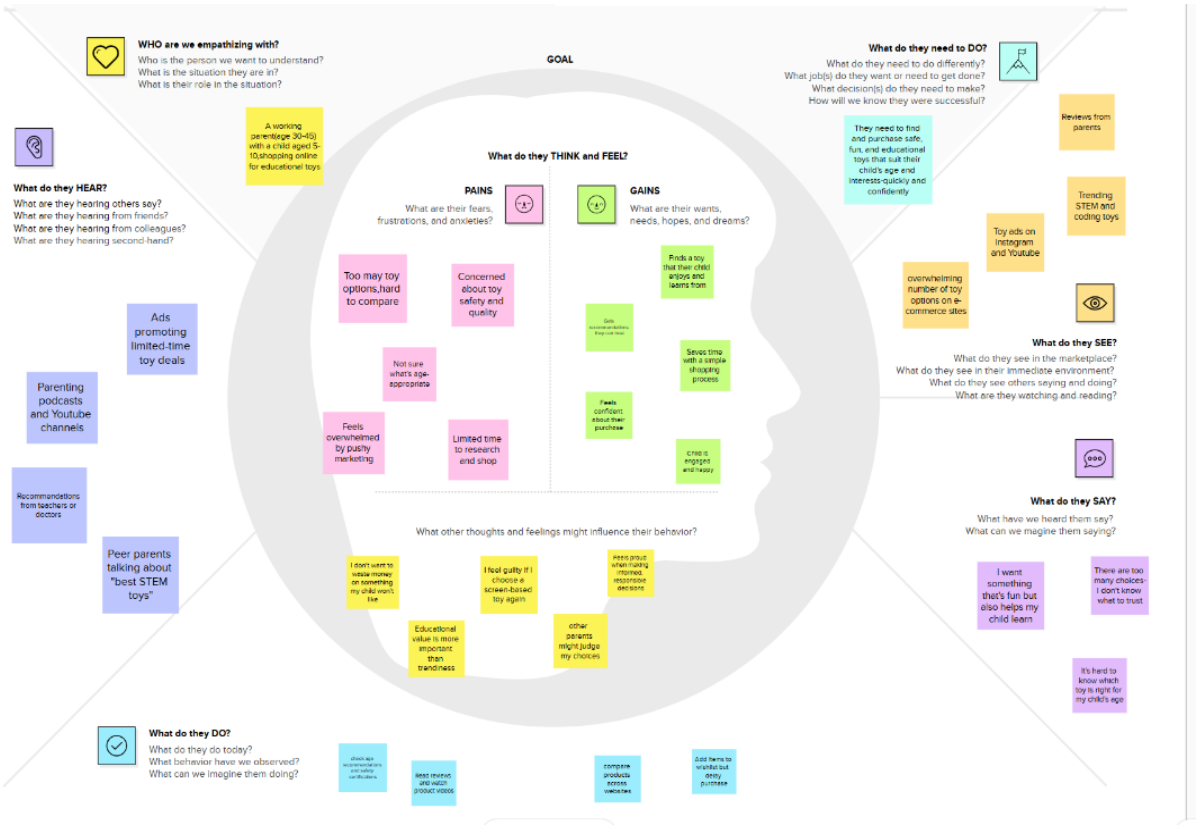
2.1 Problem Statement

Toy manufacturers struggle with understanding consumer preferences, seasonal trends, and regional toy demands. They need a data-driven dashboard to align production and distribution with real-world insights.

2.2 Empathy Map Canvas

- **Who are we empathizing with?** Toy manufacturers, retailers, parents
- **What do they need to do**? Understand toy trends and consumer demands
- **What do they see?** Fragmented reports or guess-based decisions
- **What do they say/do?** Rely on past experience or basic trends

- **What do they hear?** Market pressure, retailer feedback, competitor movements

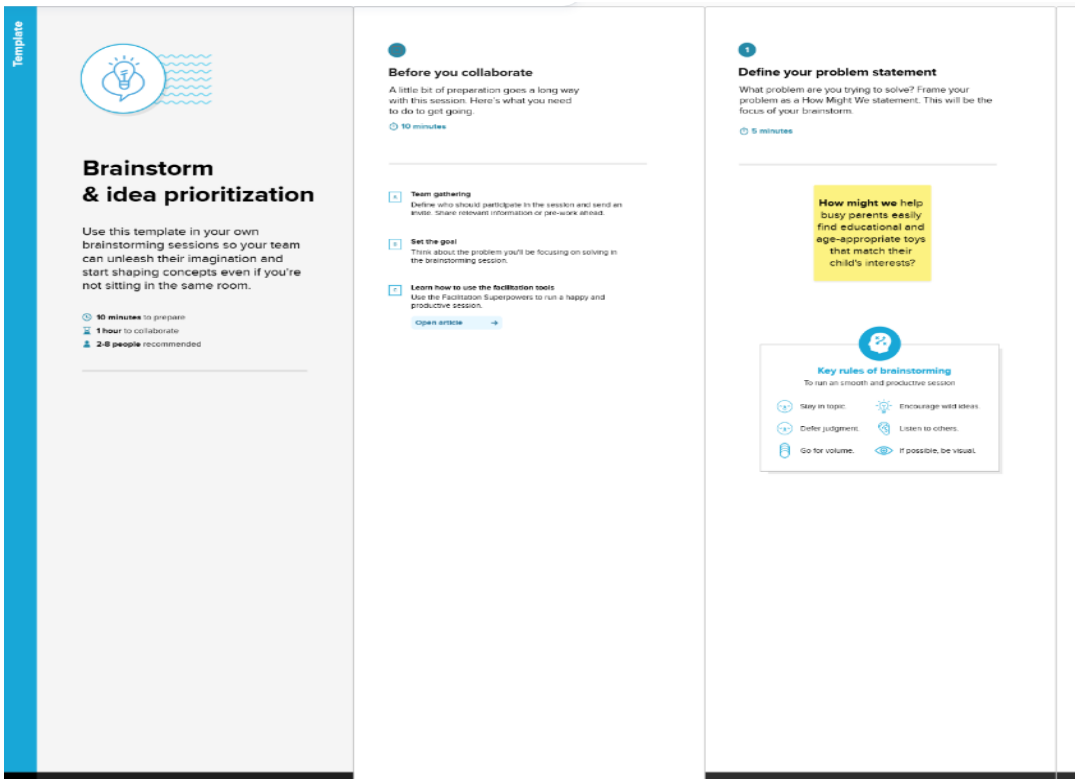


2.3 Brainstorming

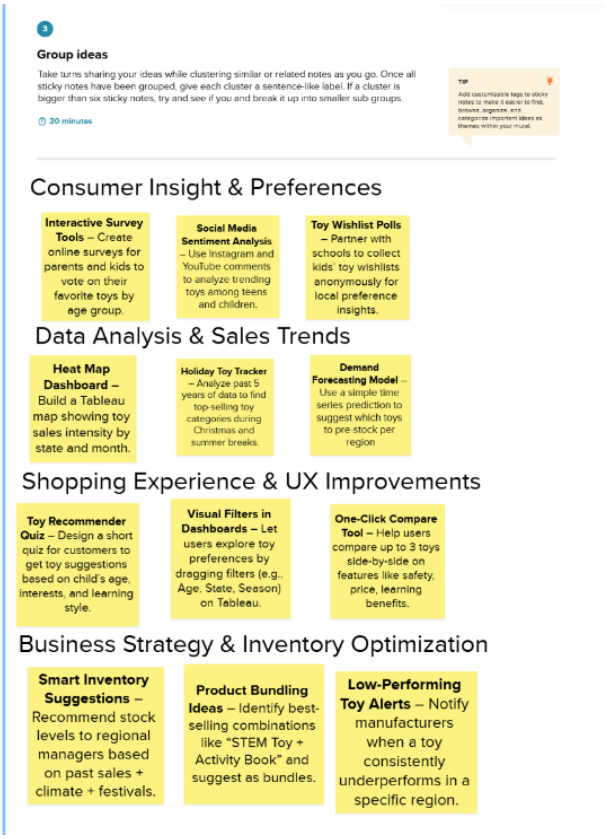
Participants & Ideas:

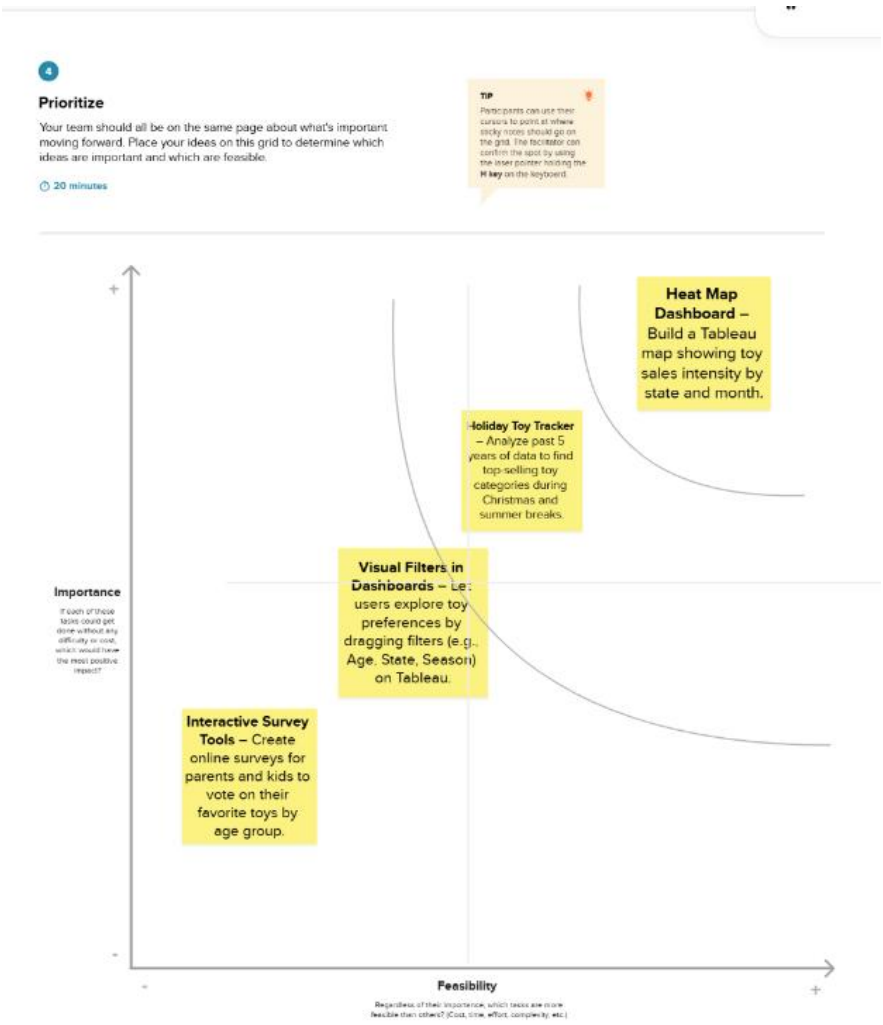
- *Student 1*: Integrate real-time feedback, Include demographic filters, Create exportable graphs
- *Student 2*: Use survey forms, Allow interactive maps, Add toy type comparison
- *Student 3*: Monthly sales heatmap, Top toys by region, Historical vs current analysis
- *Student 4*: Holiday sales tracker, Toy category popularity, Personalized insights

Grouped Ideas: Dashboard Filters, Visual Comparison Tools, Real-time Feedback Integration, Personalization, Export Options


Template
Brainstorm
& idea prioritization
Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.
10 minutes to prepare
1 hour to collaborate
2-8 people recommended
Before you collaborate
A little bit of preperation goes a long way with this session. Here's what you need to do to get going.
10 minutes
Team gathering
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.
Set the goal
Think about the problem you'll be focusing on solving in the brainstorming session.
Learn how to use the facilitation tools
Use the Facilitation Superpowers to run a happy and productive session.
Open article
1
Define your problem statement
What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.
5 minutes
How might we help busy parents easily find educational and age-appropriate toys that match their child's interests?
Key rules of brainstorming
To run an smooth and productive session
Stay in topic.
Encourage wild ideas.
Defer judgment.
Listen to others.
Go for volume.
If possible, be visual.


2
Brainstorm
Write down any ideas that come to mind that address your problem statement.
10 minutes
TIP
You can select a sticky note and hit the pencil [switch to sketch] icon to start drawing!
Person 1
Interactive Survey Tools – Create online surveys for parents and kids to vote on their favorite toys by age group.
Social Media Sentiment Analysis – Use Instagram and YouTube comments to analyze trending toys among teens and children.
Toy Wishlist Polls – Partner with schools to collect kids' toy wishlists anonymously for local preference insights.
Person 2
Heat Map Dashboard – Build a Tableau map showing toy sales intensity by state and month.
Holiday Toy Tracker – Analyze past 5 years of data to find top-selling toy categories during Christmas and summer breaks.
Demand Forecasting Model – Use a simple time series prediction to suggest which toys to pre-stock per region
Person 3
Toy Recommender Quiz – Design a short quiz for customers to get toy suggestions based on child's age, interests, and learning style.
Visual Filters in Dashboards – Let users explore toy preferences by dragging filters (e.g., Age, State, Season) on Tableau.
One-Click Compare Tool – Help users compare up to 3 toys side-by-side on features like safety, price, learning benefits.
Person 4
Smart Inventory Suggestions – Recommend stock levels to regional managers based on past sales + climate + festivals.
Product Bundling Ideas – Identify best-selling combinations like "STEM Toy + Activity Book" and suggest as bundles.
Low-Performing Toy Alerts – Notify manufacturers when a toy consistently underperforms in a specific region.


3
Group ideas
Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.
20 minutes
TIP
Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.
Consumer Insight & Preferences
Interactive Survey Tools – Create online surveys for parents and kids to vote on their favorite toys by age group.
Social Media Sentiment Analysis – Use Instagram and YouTube comments to analyze trending toys among teens and children.
Toy Wishlist Polls – Partner with schools to collect kids' toy wishlists anonymously for local preference insights.
Data Analysis & Sales Trends
Heat Map Dashboard – Build a Tableau map showing toy sales intensity by state and month.
Holiday Toy Tracker – Analyze past 5 years of data to find top-selling toy categories during Christmas and summer breaks.
Demand Forecasting Model – Use a simple time series prediction to suggest which toys to pre-stock per region
Shopping Experience & UX Improvements
Toy Recommender Quiz – Design a short quiz for customers to get toy suggestions based on child's age, interests, and learning style.
Visual Filters in Dashboards – Let users explore toy preferences by dragging filters (e.g., Age, State, Season) on Tableau.
One-Click Compare Tool – Help users compare up to 3 toys side-by-side on features like safety, price, learning benefits.
Business Strategy & Inventory Optimization
Smart Inventory Suggestions – Recommend stock levels to regional managers based on past sales + climate + festivals.
Product Bundling Ideas – Identify best-selling combinations like "STEM Toy + Activity Book" and suggest as bundles.
Low-Performing Toy Alerts – Notify manufacturers when a toy consistently underperforms in a specific region.



3. REQUIREMENT ANALYSIS

3.1 Customer Journey Map

Experience Steps include: Entice > Enter > Engage > Exit > Extend. Touchpoints include registration, dashboard use, export, and re-engagement via emails.

3.2 Solution Requirement

- **Functional:** User registration, Dashboard filtering, Survey form submission, Data visualization, Download graphs
- **Non-Functional:** Usability, Scalability, Security, Performance, Accessibility

3.3 Data Flow Diagram

- User > Form input > Data preprocessing (Excel/Tableau Prep) > Tableau dashboard > Filters & Visualizations > Export/Feedback

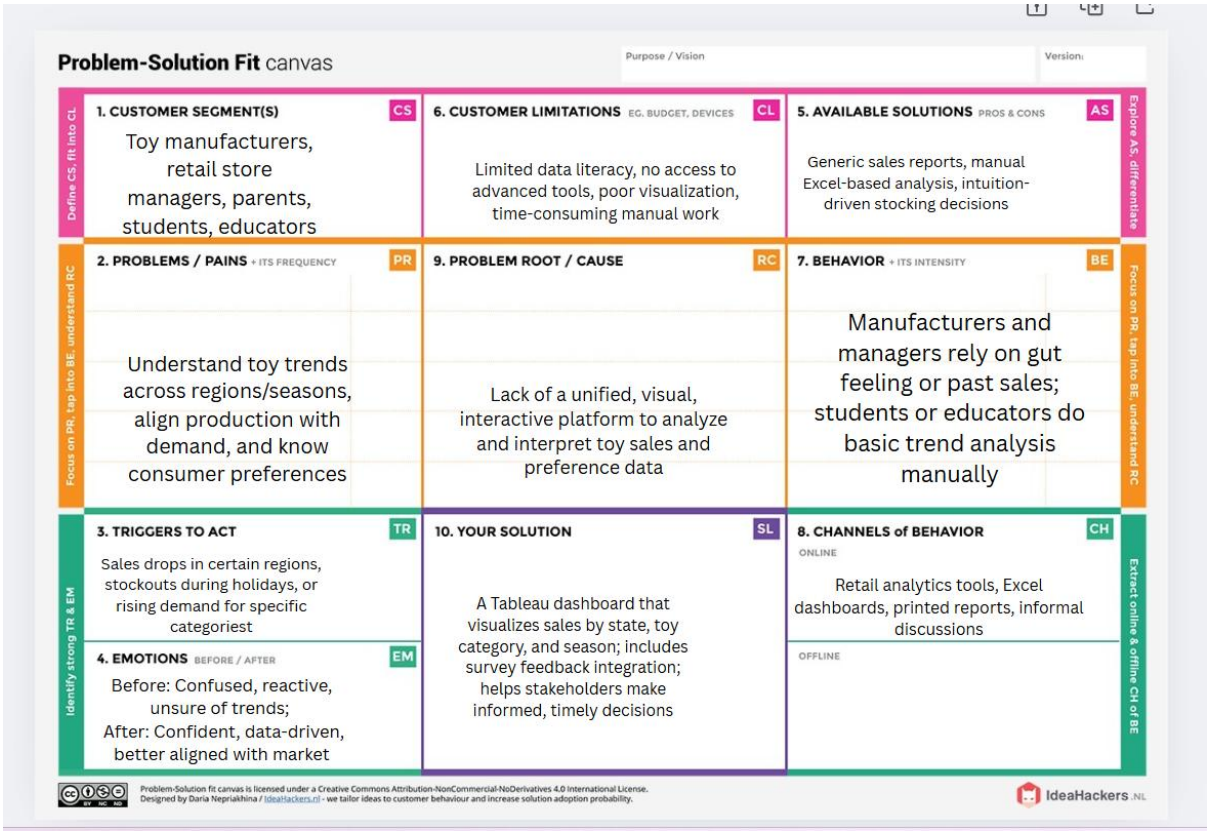
3.4 Technology Stack

- **Frontend**: Tableau
- **Backend/Data**: Excel, Tableau Prep, Google Forms
- **Hosting**: Tableau Public

4. PROJECT DESIGN

4.1 Problem Solution Fit

Connects the customer need for insights with a visual solution. Provides data clarity for better planning.



4.2 Proposed Solution

An interactive Tableau dashboard that visualizes toy sales data filtered by region, category, and season with integrated survey feedback for trend alignment.

4.3 Solution Architecture

User input & dataset → Tableau Prep → Processed dataset → Tableau Dashboard → Filter, visualize, and export features

5. PROJECT PLANNING & SCHEDULING

5.1 Project Planning

Sprints:

- Sprint 1: Registration & Login (5 story points)
- Sprint 2: Dashboard creation & filtering (6 story points)
- Sprint 3: Survey integration & export (6 story points)
- Sprint 4: Admin control & final testing (3 story points)

Tools Used:

● Mural – For brainstorming, empathy maps, and idea prioritization

● Excel/Google Sheets – For data cleaning and backlog tracking

● Tableau Public – For building dashboards, stories, and sharing

● Draw.io / Diagrams.net – For DFDs and visual planning

● MS Word / PDF Editor – For writing and formatting the final report

6. FUNCTIONAL AND PERFORMANCE TESTING

6.1 Performance Testing

- **DataRendered**:
  The dashboard uses toy manufacturer data from the years 2000 to 2022, covering long-term trends.
- **Preprocessing:**
  Before importing into Tableau, the data was cleaned to remove missing values, correctly format dates, and standardize state names to ensure accurate visualization.
- **FiltersUsed:**
  Users can explore the data using several interactive filters like:
  ➤Year (to view trends over time)
  ➤State (to analyze region-wise distribution)

➤Toy type (to check category-wise sales)
➤ Season (to understand seasonal patterns)

- **CalculationFields:**
  Custom fields were created inside Tableau to enhance analysis, such as:
  ➤ % Growth (year-on-year increase in sales)
  ➤ Category Rank (ranking of toy types based on demand)
  ➤ Sales by Region (total units sold by state/region)

- **DashboardDesign:**
  A total of 6 visualizations were created using different chart types including:
  - Line Chart, Bar Chart, Heatmap, Treemap, Pie Chart, and Dual-Axis Chart

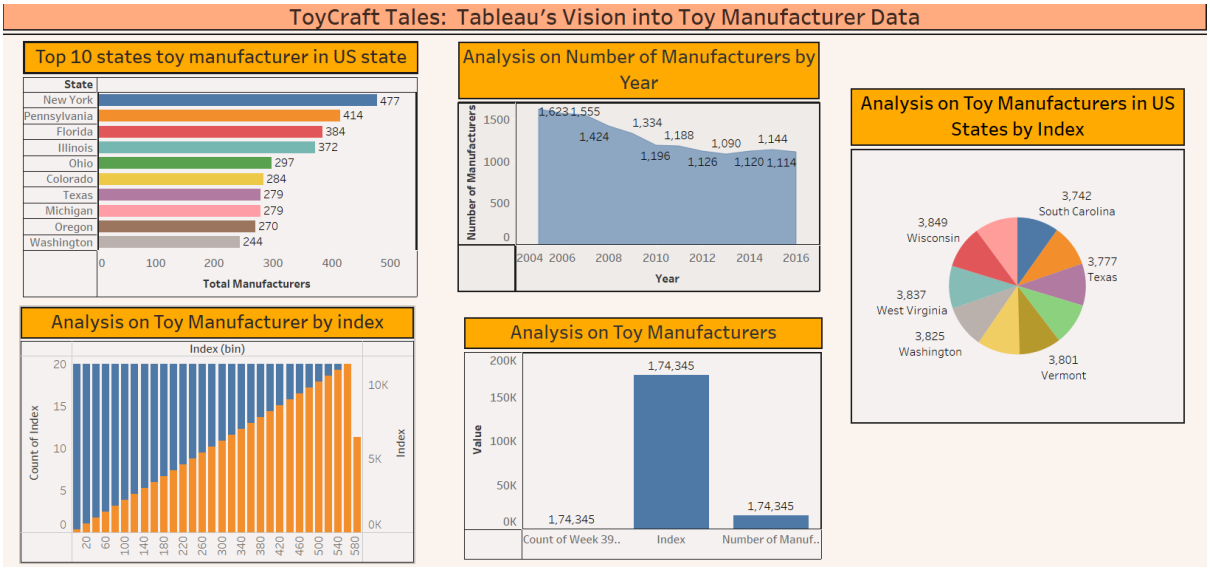
- **StoryDesign:**
  The data was also structured as a Tableau Story with 5 slides/pages, each explaining a part of the data:

1. Intro
2. Market Trends
3. Seasonal Insights
4. Regional Distribution
5. Customer Preferences

7. RESULTS

7.1 Output Screenshots

DASHBOARD



8. ADVANTAGES & DISADVANTAGES

Advantages

- **Easy to Use:** Anyone, including students and business users, can explore the data.
- **Effective Filters**: Quick insights using Year, Region, Season, etc.
- **Live Survey Integration:** Customer feedback can be visualized in real time.

Disadvantages

- **Limited Dataset**: Depends on what's available publicly or collected manually.
- **Feature Limits in Free Version**: Tableau Public restricts some sharing and interactivity features (compared to Tableau Server).

9. CONCLUSION

The **ToyCraft Tales** dashboard effectively visualizes toy industry data to support **better decisions** in manufacturing, marketing, and distribution. It simplifies complex data and presents it in a **clear and actionable format**, helping bridge the **gap between raw data and strategy**.

10. FUTURE SCOPE

- **AI-Based Trend Prediction**: Forecast future toy trends using machine learning.
- **Demographic Filters**: Include age, gender, and urban/rural segmentation.
- **Mobile Compatibility**: Make dashboards easier to use on smartphones/tablets.
- **Inventory Integration**: Connect with real-time inventory systems (ERP) for smarter stocking decisions.

11. APPENDIX

Dataset Link:

https://www.kaggle.com/datasets/thedevastator/toy-manufacturers-in-us-states?select=Week+39+-+US+Toy+Manufacturers+-+2005+to+2016.hyper

GitHub Link:

https://github.com/Valluripalli-NagaPoojitha/ToyCraft-Tales-Tableau-s-Vision-into-Toy-Manufacturer-Data